This document gives pertinent information concerning reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.09 MGD wastewater treatment plant with a proposed expansion to 0.18 MGD. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

1.	Facility Name and Mailing Address:	Federal Emergency Management Agency Mount Weather Emergency Operations Center P.O. Box 129 Mt. Weather, VA 22611-0129	SIC Code :	4952 WWTP
	Facility Location:	Mount Weather Emergency Operations Center 19844 Blue Ridge Mountain Road Berryville, VA 20135	County:	Loudoun
	Facility Contact Name:	Peter Mango	Telephone Number:	540-542-2368 (Office) 540-542-2497 (Cell)
	Facility E-mail Address:	peter.mango@dhs.gov		
2.	Permit No.:	VA0024759	Expiration Date of previous permit:	09/21/2013
	Other VPDES Permits associated with this facility:		VA0091464 (Storm Water and Industrial Discharge); VAN010164 (Nutrient General Permit)	
	Other Permits associated with this facility:		Petroleum (Registration ID 3022703); Waste (VAR000012609); Air (Registration IDs 90366 and 73694)	
	E2/E3/E4 Status:	NA		
3.	Owner Name:	Federal Emergency Management Agency Mt. Weather Emergency Operations Center		
	Owner Contact/Title:	Peter Mango, Supervisory Engineering Technician	Telephone Number:	540-542-2368 (Office) 540-542-2497 (Cell)
	Owner E-mail Address:	Peter.mango@dhs.gov		
4.	Application Complete Date:	3/08/2013; With Expansion 1/13/2014		
	Permit Drafted By:	Anna Westernik	Date Drafted:	2/14/2014
	Draft Permit Reviewed By:	Alison Thompson	Date Reviewed:	2/23/2014
	WPM Review By:	Bryant Thomas	Date Reviewed:	3/4/2014
	Public Comment Period :	Start Date:	End Date:	

5. Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination (All flows assumed to be 0.0 MGD due to the position of the outfall at the top of a mountain)

Receiving Stream Name :	Jeffries Branch, UT	Stream Code:	1aXCD
Drainage Area at Outfall:	0.1 sq.mi.	River Mile:	1.12
Stream Basin:	Potomac	Subbasin:	Potomac
Section:	9	Stream Class:	III
Special Standards:	None	Waterbody ID:	VAN-A05R
7Q10 Low Flow:	0.0 MGD	7Q10 High Flow:	0.0 MGD
1Q10 Low Flow:	0.0 MGD	1Q10 High Flow:	0.0 MGD
30Q10 Low Flow:	0.0 MGD	30Q10 High Flow:	0.0 MGD
Harmonic Mean Flow:	0.0 MGD	30Q5 Flow:	0.0 MGD

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

X	State Water Control Law		EPA Guidelines
X	Clean Water Act	X	Water Quality Standards
X	VPDES Permit Regulation	X	Other (9VAC25-120 -- General Permit for Discharges from Petroleum-Contaminated Sites, Groundwater Remediation and Hydrostatic Tests)
X	EPA NPDES Regulation		

7. Licensed Operator Requirements: Class III (0.09 MGD Design Flow); Class II (0.18 MGD Design Flow)

8. Reliability Class: Class II

9. Permit Characterization:

	Private	X	Effluent Limited		Possible Interstate Effect
X	Federal	X	Water Quality Limited		Compliance Schedule Required
	State		Whole Effluent Toxicity Program Required		Interim Limits in Permit
	POTW		Pretreatment Program Required		Interim Limits in Other Document
X	TMDL	X	e-DMR Participant		

10. Wastewater Sources and Treatment Description:

The facility currently has a permitted flow of 0.09 MGD; the average flow is 0.040 MGD. Wastewater from municipal sewage sources an oil and water separator located at the motor pool flows via gravity to the headworks where it passes through a manual coarse bar screen. There is a bypass line from the bar screen, which can route the wastewater to the secondary clarifier if needed. After preliminary treatment, flow is directed to a conventional Imhoff tank. The Imhoff tank consists of an upper chamber in which sedimentation takes place (allowing solids to settle) and an inclined bottom leading to a lower chamber in which the sludge is collected and digested. This design allows sewage flow only through the upper sedimentation chamber. The lower chamber requires separate biogas vents and pipes for the removal of digested sludge, typically after six to nine months of digestion. The operators run a chain through the main slot on a daily basis to keep the scum layer in the digester vents at a manageable thickness. Surface scum on the clarifier portion of the tank is broken up twice a year and the sludge is drained from the digesters at the same frequency.

Sludge removal typically occurs in May and October and is spread on drying beds adjacent to the plant based on operator experience and the amount of gasification occurring in the digesters. Drying bed supernatant is collected and returned to the head of the plant. Dried solids are transported to the Frederick County, Virginia landfill for disposal.

After the Imhoff tank, wastewater is distributed across a fixed granite media trickling filter. There are a total of 32 nozzles, but typically only half of them are utilized due to the low flows. Following the filter, flow passes through a secondary clarifier. Scum removed from the clarifier is returned to the head of the Imhoff tank for treatment. Flow then passes through a baffled chlorine contact chamber where the wastewater is disinfected with gaseous chlorine. Dechlorination is accomplished in an underground tank with sulfur dioxide prior to post step aeration.

The final stage of treatment is accomplished via natural attenuation. After post aeration, the treated effluent flows down the side of the mountain (dropping approximately 186 feet) to a collection basin. The facility conducted dye tests in 1998 and 1999 to ensure that the effluent was reaching the collection basin as intended. These tests indicated that the final effluent was staying within the intended route and collecting in the basin. This basin is the established sampling point for ammonia, BOD and TSS (composites via automatic sampler); whereas, grab samples for pH, dissolved oxygen (D.O.), and total residual chlorine (TRC) are collected after post aeration prior to the natural attenuation. The basin then discharges through two pipes under the road, 50 feet down the mountain to the property fence line, and then the receiving stream.

FEMA is proposing to replace this facility with a 0.09 MGD sequencing batch reactor (SBR) unit that will be capable of achieving a Total Nitrogen (TN) concentration of 3.0 mg/L and a Total Phosphorus (TP) concentration of 0.18 mg/L using supplemental carbon feed when expanded to 0.18 MGD. The treatment plant (consisting of two treatment trains) will have an equalization basin, two anoxic zones, a membrane bioreactor, and ultraviolet (UV) disinfection. The new wastewater treatment plant will be located within a building.

See **Attachment 2** for facility schematic/diagrams.

TABLE 1 – Outfall Description				
Outfall Number	**Discharge Sources**	**Treatment**	**Design Flow(s)**	**Outfall Latitude/Longitude**
001	Domestic and/or Commercial Wastewater, (Including an Oil/Water Separator Originating from the Motor Pool)	See Item 10 above.	0.09 MGD; 0.18 MGD	39° 03' 32" 77° 52' 53"
See **Attachment 3** for Topographic Map 216 C (Ashby Gap).				

11. Sludge Treatment and Disposal Methods:

Sludge is currently anaerobically digested in the Imhoff digester, dewatered on drying beds, and transported to the Frederick County Landfill for final disposal. When the sewage treatment plant is expanded, sludge will continue to be disposed of in the Frederick County Landfill.

12. Discharges in Waterbody VAN-A05R

TABLE 2			
Individual Permits			
River Mile	**Type**	**Latitude/Longitude**	**Description**
Jeffries Branch, UT	Variable Process and Industrial Storm Water Discharge	Two process outfalls and two industrial storm water outfalls	FEMA Industrial (VA0091464)
25.98 Goose Creek	0.075 MGD Municipal Wastewater Discharge	39° 03’ 21” 77° 44’ 38”	Middleburg Academy (VA0024112)
3.07 Wancopin Creek	0.25 MGD Municipal Wastewater Discharge	38° 52’ 23” 77° 43’ 36”	Middleburg WWTP (VA0024775)
0.32 Goose Creek, UT	0.015 MGD Municipal Wastewater Discharge	38° 59’ 27.1” 77° 47’ 21.1”	Notre Dame Academy (VA0027197)
Single Family Homes			
Receiving Stream	**Description**		
Goose Creek, UT	Allen Fred Residence (VAG406470)		
Woolf's Mill Run	Latimer Howard L Residence (VAG406193)		
Petroleum			
Middleburg Academy (VAG830431)			

13. Material Storage:

TABLE 3 - Material Storage		
Materials Description	**Volume Stored**	**Spill/Stormwater Prevention Measures**
Chlorine Gas*	150 lb. cylinders	Full cylinders are stored inside the chlorination/dechlorination building.
Sulfur dioxide*	150 lb. cylinders	
*Chemical storage at the 0.09 MGD design flow.		

14. Site Inspection:

Performed by Anna Westernik on January 9, 2013 (see **Attachment 4**).

15. Receiving Stream Water Quality and Water Quality Standards:

a. Ambient Water Quality Data

This facility discharges to an unnamed tributary to Jeffries Branch, which is not monitored and assessed by DEQ. The nearest downstream DEQ monitoring station is 1aJEE002.22, located on Jeffries Branch at the Route 743 bridge crossing, approximately three miles downstream of Outfall 001. The following is the water quality summary for this segment of Jeffries Branch as taken from the 2012 Integrated Report approved by EPA on December 12, 2013:

Class III, Section 9.

DEQ biological monitoring station 1aJEE002.22. Citizen monitoring station 1aJEE-22-SOS.

Biological monitoring finds benthic macroinvertebrate impairments, resulting in an impaired classification for the aquatic life use. Additionally, citizen monitoring finds a medium probability of adverse conditions for biota.

The *E. coli* data collected by the citizen monitoring group indicate that a water quality issue may exist for the recreation use; however, the methodology and/or data quality has not been approved for such a determination. The recreation use is noted with an observed effect.

The fish consumption and wildlife uses were not assessed.

b. 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

TABLE 4							
Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the 2012 Integrated Report							
Jeffries Branch	Aquatic Life	Benthic Macroinvertebrates	1.1 miles	No	---	---	2024
Panther Skin Creek	Recreation	*E. coli*	5.3 miles	Goose Creek Watershed Bacteria 05/01/03 (Mod. 10/27/06)	4.97E+11cfu/year fecal coliform; 3.13E+11cfu/year *E. coli*	200 cfu/100ml FC; 126 cfu/100ml *E. coli* --- 0.18 MGD	NA
Goose Creek	Fish Consumption	PCBs	34.7 miles	No	---	---	2018
	Aquatic Life	Benthic Macroinvertebrates	35.8 miles	Goose Creek Watershed Benthic 04/26/04	3.2 tons/yr TSS*	23 mg/L TSS --- 0.09 MGD*	NA

**It is noted that the WLA for TSS (3.2 tons/year) for the U.S. FEMA Bluemont STP facility will remain the same despite the increase in the design flow from 0.09 MGD to 0.18 MGD. At the higher flow tier, the TSS concentration limit is proposed to be 5 mg/L. Calculating a new WLA based upon the higher design flow and the lower TSS concentration limit would result in a smaller WLA that would not be achieved until the plant upgrade was complete. For the time being, the WLA of 3.2 tons/year TSS assigned to this facility in the Goose Creek Benthic TMDL will remain.*

This facility was assigned a WLA for 16 tons/year of TSS in the Benthic TMDL for the Goose Creek watershed, and a WLA of 1.24E+12 cfu/year of fecal coliform in the modification to the Goose Creek Bacteria TMDL. The total WLAs were calculated based upon the assumption of the facility operating at 5 times the design flow, and the permitted maximum average concentration for TSS (mg/L) and, at the time, the permitted maximum average concentration of 200 cfu/100ml of fecal coliform bacteria, respectively. The factor of 5 for the design flow was used in both TMDLs as a conservative measure to build in future growth in the watershed. Although the future growth for the watershed was determined by the existing design flow of each facility in the watershed, the future growth is available for both new and expanding permits in the watershed. The actual WLA in the Benthic TMDL for this facility without including the future growth is 3.2 tons/year, based on a design flow of 0.09 MGD. The WLA assigned to this facility in the modified Bacteria TMDL is 2.48E+11 cfu/year of fecal coliform, based on a design flow of 0.09 MGD.

Since the approved modification of the Bacteria TMDL for Goose Creek, the U.S. FEMA Bluemont STP facility has updated the maximum flow tier to 0.18 MGD. The Bacteria TMDL was modified to include a reserve allocation designated for future growth, available for allocation to new and expanding permits in the watershed on a first-come, first-serve basis, and is tracked as permits are added or terminated within the watershed. The Goose Creek Bacteria TMDL was modified to include a future growth allocation of 3.09E+13 cfu/yr fecal coliform. Previous to the expansion of the FEMA Bluemont STP facility, there were several new permits that used a small portion of the future growth allocation, bringing the remaining allocation to 3.09E+13 cfu/yr fecal coliform. In assigning a new WLA to FEMA Bluemont STP to account for the expansion, 2.49E+11 cfu/yr fecal coliform of the future growth allocation is consumed, leaving 3.06E+13 cfu/yr fecal coliform available for future new permits and facility expansions. There is sufficient future growth in the TMDL to allocate a new WLA of 4.97E+11 cfu/yr fecal coliform for this permit. The assignment of future growth allocation for the new fecal coliform WLA for the FEMA Bluemont STP facility is consistent with the assumptions and requirements of the Goose Creek Bacteria TMDL.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the draft 2012 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories (wastewater, urban storm water, onsite/septic agriculture, air deposition). Fact Sheet Section 17.e provides additional information on specific nutrient limitations for this facility to implement the provisions of the Chesapeake Bay TMDL.

The full planning statement is found in **Attachment 5**.

c. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, Jeffries Branch, UT, is located within Section 09 of the Potomac River Basin and is a Class III water.

Class III waters must achieve a D.O. of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, and a temperature that does not exceed 32°C at all times; a pH of 6.0-9.0 standard units (S.U.) must be maintained.

Attachment 6 details other water quality criteria applicable to the receiving stream.

1) Ammonia:
The fresh water aquatic life water quality criteria for ammonia are dependent on the instream temperature and pH. The 90th percentile temperature and pH values are used because they best represent the critical design conditions of the receiving stream. The 7Q10 and 1Q10 of the receiving stream are 0.0 MGD. In cases such as this, effluent pH and temperature data may be used to establish the ammonia water quality standard (see **Attachment 7** for the derivation of the 90th percentile values of the effluent pH and temperature data from September 2012 to October 2013).

Attachment 7 finds no significant differences from the data used to establish ammonia criteria and subsequent effluent limits in the previous permit. However, since a default annual temperature value of 25°C was used in the previous permit reissuance, the actual calculated annual 90th percentile temperature value of 21°C shall be used to calculate ammonia criteria. This action results in a minor change in the chronic ammonia criteria from 2.0 mg/L to 2.6 mg/L (see **Attachment 6**).

2) Metals Criteria:
Since the 7Q10 of the receiving stream is zero and no ambient data is available, effluent hardness data may be used to determine the metals criteria. Staff utilized an average hardness value of 204 mg/L calculated from data collected by FEMA on September 24, 26, and 27, 2013. The hardness-dependent metals criteria in **Attachment 6** are based on this value. Correspondence transmitting the hardness data to DEQ can be found in the permit reissuance file.

3) Bacteria Criteria:
The Virginia Water Quality Standards at 9VAC25-260-170A state that the following criteria shall apply to protect primary recreational uses in surface waters:

E. coli bacteria per 100 ml of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean[1]
Freshwater *E. coli* (N/100 ml)	126

[1]For a minimum of four weekly samples [taken during any calendar month].

d. Receiving Stream Special Standards
The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370, and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Jeffries Branch, UT, is located within Section 09 of the Potomac River Basin. This section has not been designated with a special standard.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 because the critical flow frequencies are 0.0 MGD; and therefore, at times the receiving stream may consist primarily of effluent (see Section 5 of this fact sheet). The permit limits proposed have been established by determining wasteload allocations that will result in attaining and/or maintaining all water quality criteria applicable to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

The appropriate Water Quality Standards (WQS) are then determined for the pollutants in the effluent, and the Wasteload Allocations (WLA) are calculated. Since the critical flows have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the

97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. In the case of ammonia evaluations, limits are needed if the 97th percentile of the 30-day average effluent concentration values is greater than the chronic WLA. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a. Effluent Screening

Effluent data obtained from September 2012 to October 2013 were used in determining ammonia criteria and hence, limits. Discharge monitoring report data from September 2012 to August 2013 were reviewed. All parameters were found to be in compliance with the exception of *E. coli* in December 2012. Please see **Attachment 8** for a summary of effluent data.

b. Mixing Zones and Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedence of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{Co\,[\,Qe + (\,f\,)\,(Qs\,)\,] - [\,(\,Cs\,)\,(\,f\,)\,(\,Qs\,)\,]}{Qe}$$

Where:

	WLA	=	Wasteload allocation
	Co	=	In-stream water quality criteria
	Qe	=	Design flow
	Qs	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
	f	=	Decimal fraction of critical flow
	Cs	=	Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10, 1Q10, and 30Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the Co.

c. Effluent Limitations for Toxic Pollutants -- Outfall 001

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N:

Staff evaluated the new effluent data and has concluded it is not significantly different than what was used to derive the existing ammonia limits. However, a calculated temperature value was used to determine criteria as discussed in Section 15.c of this fact sheet. Upon deriving ammonia limits, it was determined that the facility would receive a monthly average limit of 3.6 mg/L and a weekly average limit of 5.2 mg/L (**Attachment 9**). However, due to antibacksliding provisions, the existing ammonia limits of 2.1 mg/L monthly average and 3.0 mg/L weekly average are proposed to continue in the reissued permit.

2) Total Residual Chlorine (TRC):

Since chlorine is used for disinfection, it is potentially in the discharge. Staff calculated WLAs for TRC using current critical flows. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.007 mg/L and a weekly average limit of 0.008 mg/L are proposed for this discharge (**Attachment 9**).

3) Petroleum Constituents:

An oil/water separator, located in the motor pool building, is connected to the FEMA sanitary sewer. Staff applied the performance limitation for total petroleum hydrocarbons (TPH) considering the ability of the oil/water separator and best management practices to mitigate the discharge of petroleum constituents. It is proposed that a technology-based limit of 15 mg/L for TPH be carried forward with this permit reissuance. This limit is applicable for discharges where the contamination is from petroleum products other than gasoline. It is based on the ability of simple oil/water separator technology to recover free product from water. Wastewater that is discharged without a visible sheen is generally expected

to meet this effluent limitation. Staff applied semi-annual monitoring for all BTEX constituents (benzene, toluene, ethylbenzene, and total xylenes) and naphthalene.

d. Effluent Limitations and Monitoring for Conventional and Non-Conventional Pollutants -- Outfall 001
No changes to D.O., biochemical oxygen demand-5 day (BOD_5), total suspended solids (TSS), *E. coli*, and pH limitations are proposed with the current treatment unit. When a CTO is issued for the upgrade to a SBR unit, the monthly average and weekly average BOD_5 and TSS concentration limits will be changed from 23 mg/L and 35 mg/L to a monthly average and weekly average of 10 mg/L and 15 mg/L for BOD_5 and a monthly average and weekly average of 5.0 mg/L and 7.5 mg/L for TSS in accordance with the design engineer's proposal of the treatment that could be provided by the unit.

D.O. and BOD_5 limitations using the current treatment unit are based on the stream modeling dated April 15, 1975 (**Attachment 10**) and are set to meet the water quality criteria for D.O. in the receiving stream. The D.O. and BOD_5 limitations with the SBR are based upon the technology of the treatment unit.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards at 9VAC25-260-170.

e. Effluent Annual Average Limitations and Monitoring for Nutrients -- Outfall 001
In order to assess the effect of nutrient discharge on a local benthic impairment, this facility shall perform quarterly nutrient monitoring for TN and TP at the 0.09 MGD design flow tier (see Section 15.b for a description of the benthic macroinvertebrates impairment).

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the concentration limits is 9VAC25-40 - Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed that requires new or expanding discharges with design flows of $\geq$0.04 MGD to treat for TN and TP to either BNR levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

This facility has also obtained coverage under 9VAC25-820 General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for TN and TP Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN010164. TN Annual Loads and TP Annual Loads from this facility are found in 9VAC25-720 – Water Quality Management Plan Regulation that sets forth TN and TP maximum wasteload allocations for facilities designated as significant discharges, i.e., those with design flows of $\geq$0.5 MGD above the fall line and $\geq$0.1 MGD below the fall line.

Monitoring for Nitrates + Nitrites, Total Kjeldahl Nitrogen (TKN), TN, and TP are included in this permit. The monitoring is needed to protect the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies are set at the frequencies set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations, for TN and TP are included in this individual permit for the 0.18 MGD design flow tier. The annual averages are based on 9VAC25-40 and GM07-2008.

f. Effluent Limitations and Monitoring Summary
The effluent limitations are presented in the following table. Limits were established for BOD_5, $cBOD_5$, TSS, ammonia, pH, D.O., TRC, TPH, naphthalene, *E. coli*, TN and TP.

The mass loading (kg/d) for monthly and weekly averages was calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 3.785.

The mass loading (lb/d) TP monthly and weekly averages was calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 8.345.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for BOD/CBOD and TSS (or 65% for equivalent to secondary). Review of the DMR data from September 2012 through August 2013 (**Attachment 8**) has shown that the current treatment plant is meeting this level of removal when a theoretical influent concentration of 250 mg/L for BOD and TSS is assumed. This treatment plant is scheduled to be replaced with a biological nutrient reduction system within this permit cycle.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19.a Effluent Limitations/Monitoring Requirements:

Design flow is 0.09 MGD.

Effective Dates: During the period beginning with the permit effective date and lasting until the permit expiration date or the issuance of the certificate to operate for the new wastewater treatment plant, whichever comes first.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	1	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
BOD_5	1, 2	23 mg/L 7.8 kg/day	35 mg/L 12 kg/day	NA	NA	1/W	4H-C
Total Suspended Solids (TSS) [a]	3, 4	23 mg/L 7.8 kg/day	35 mg/L 12 kg/day	NA	NA	1/W	4H-C
Dissolved Oxygen (D.O.)	1, 2	NA	NA	6.0 mg/L	NA	1/D	Grab
Ammonia, as N (mg/L)	1	2.1 mg/L	3.0 mg/L	NA	NA	1/W	4H-C
E. coli (Geometric Mean)	1, 4	126 n/100mL	NA	NA	NA	1/W [b]	Grab
Total Residual Chlorine (after contact tank)	5	NA	NA	1.0 mg/L	NA	3/D at 4-hr Intervals	Grab
Total Residual Chlorine (after dechlorination)	1	0.007 mg/L	0.008 mg/L	NA	NA	3/D at 4-hr Intervals	Grab
Total Petroleum Hydrocarbons [c]	3, 6	NA	NA	NA	15 mg/L	1/M	Grab
Naphthalene [d]	3, 6	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Benzene [e]	3, 6	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Toluene [e]	3, 6	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Ethylbenzene [e]	3, 6	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Total Xylene [e]	3, 6	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Total Kjeldahl Nitrogen (TKN)	4	NL mg/L	NA	NA	NA	1/Q [f]	4H-C
Nitrate+Nitrite, as N	4	NL mg/L	NA	NA	NA	1/Q [f]	4H-C
Total Nitrogen [g]	4	NL mg/L	NA	NA	NA	1/Q [f]	Calculated
Total Phosphorus	4	NL mg/L	NA	NA	NA	1/Q [f]	4H-C

The basis for the limitations codes are:

1. Water Quality Standards
2. Stream Model -- **Attachment 10**
3. Best Professional Judgment
4. Current and Proposed TMDLs (see Section 15.B of this fact sheet)
5. DEQ Disinfection Guidance
6. 9VAC25-120 (Petroleum General Permit)

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
TIRE = Totalizing, indicating and recording equipment.
S.U. = Standard units.

1/D = Once every day.
1/W = Once every week.
3/D = Three times every day.
1/M = Once every month.
2/Y = Twice per year.
1/Q = Once every quarter.

4H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 4-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of four (4) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of four (4) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15 minutes.

a. TSS shall be expressed as two significant figures.
b. Samples shall be collected between 10:00 a.m. and 4:00 p.m.
c. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.
d. Naphthalene shall be analyzed by a current and appropriate EPA Wastewater Method from 40 CFR Part 136 or a current and appropriate EPA SW 846 Method.
e. Semiannual monitoring periods shall be January through June and July through December. Analytical results must be received by DEQ-NRO on Jan 10 and Jul 10.
f. Quarterly sampling must be conducted during the following calendar quarters: Jan 1 – Mar 31, Apr 1 – Jun 30, Jul 1 – Sep 30, and Oct 1 – Dec 31. Analytical results must be received by DEQ-NRO on Jan 10, Apr 10, Jul 10, and Oct 10.
g. Total Nitrogen = Sum of TKN and N_{O2}+N_{O3} N and shall be calculated from the results of those tests.

19.b Effluent Limitations/Monitoring Requirements:

Design flow is 0.09 MGD.

Effective Dates: During the period beginning with the issue of the CTO for the upgraded facility and lasting until the a CTO is issued for the expansion of the facility to a design flow of 0.18 MGD or the permit expiration date, whichever comes first.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	1	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
BOD_5	1, 2	10 mg/L 3.4 kg/day	15 mg/L 5.1 kg/day	NA	NA	1/W	4H-C
Total Suspended Solids (TSS) [a]	2, 3	5.0 mg/L 1.7 kg/day	7.5 mg/L 2.6 kg/day	NA	NA	1/W	4H-C
Dissolved Oxygen (D.O.)	1	NA	NA	6.0 mg/L	NA	1/D	Grab
Ammonia, as N (mg/L)	1	2.1 mg/L	3.0 mg/L	NA	NA	1/W	4H-C
E. coli (Geometric Mean)	1, 3	126 n/100mL	NA	NA	NA	2D/W [b]	Grab
Total Petroleum Hydrocarbons [c]	2, 4	NA	NA	NA	15 mg/L	1/M	Grab
Naphthalene [d]	2, 4	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Benzene [e]	2, 4	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Toluene [e]	2, 4	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Ethylbenzene [e]	2, 4	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Total Xylene [e]	2, 4	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Total Kjeldahl Nitrogen (TKN)	3	NL mg/L	NA	NA	NA	1/Q [f]	4H-C
Nitrate+Nitrite, as N	3	NL mg/L	NA	NA	NA	1/Q [f]	4H-C
Total Nitrogen [g]	4	NL mg/L	NA	NA	NA	1/Q [f]	Calculated
Total Phosphorus	3	NL mg/L	NA	NA	NA	1/Q [f]	4H-C

The basis for the limitations codes are:

1. Water Quality Standards
2. Best Professional Judgment
3. Current and Proposed TMDLs (see Section 15.B of this fact sheet)
4. 9VAC25-120 (Petroleum General Permit)

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
TIRE = Totalizing, indicating and recording equipment.
S.U. = Standard units.

1/D = Once every day.
1/W = Once every week.
2D/W = Two days per week.
1/M = Once every month.
2/Y = Twice per year.
1/Q = Once every quarter.

4H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 4-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of four (4) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of four (4) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15 minutes.

a. TSS shall be expressed as two significant figures.
b. Samples shall be collected between 10:00 a.m. and 4:00 p.m.
c. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.
d. Naphthalene shall be analyzed by a current and appropriate EPA Wastewater Method from 40 CFR Part 136 or a current and appropriate EPA SW 846 Method.
e. Semiannual monitoring periods shall be January through June and July through December. Analytical results must be received by DEQ-NRO on Jan 10 and Jul 10.
f. Quarterly sampling must be conducted during the following calendar quarters: Jan 1 – Mar 31, Apr 1 – Jun 30, Jul 1 – Sep 30, and Oct 1 – Dec 31. Analytical results must be received by DEQ-NRO on Jan 10, Apr 10, Jul 10, and Oct 10.
g. Total Nitrogen = Sum of TKN and NO_2+NO_3 N and shall be calculated from the results of those tests.

19.c Effluent Limitations/Monitoring Requirements:

Design flow is 0.18 MGD.

Effective Dates: During the period beginning with the issue of the CTO for the expanded facility and lasting until the permit expiration date, whichever comes first.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	1	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
BOD_5	1, 2	10 mg/L 6.8 kg/day	15 mg/L 10 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS) [a]	3, 4	5.0 mg/L 3.4 kg/day	7.5 mg/L 5.1 kg/day	NA	NA	3D/W	8H-C
Dissolved Oxygen (D.O.)	1	NA	NA	6.0 mg/L	NA	1/D	Grab
Ammonia, as N (mg/L)	1	2.1 mg/L	3.0 mg/L	NA	NA	3D/W	8H-C
E. coli (Geometric Mean)	1, 3	126 n/100mL	NA	NA	NA	3D/W [b]	Grab
Total Petroleum Hydrocarbons [c]	2, 4	NA	NA	NA	15 mg/L	1/M	Grab
Naphthalene [d]	2, 4	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Benzene [e]	2, 4	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Toluene [e]	2, 4	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Ethylbenzene [e]	2, 4	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Total Xylene [e]	2, 4	NA	NA	NA	NL µg/L	2/Y [e]	Grab
Total Kjeldahl Nitrogen (TKN)	1, 5	NL mg/L	NA	NA	NA	1/2W	8H-C
Nitrate+Nitrite, as N	1, 5	NL mg/L	NA	NA	NA	1/2W	8H-C
Total Nitrogen [f]	1, 5	NL mg/L	NA	NA	NA	1/2W	Calculated
Total Nitrogen – Year to Date [g]	1, 5	NL mg/L	NA	NA	NA	1/M	Calculated
Total Nitrogen - Calendar Year [g]	1, 5	8.0 mg/L	NA	NA	NA	1/YR	Calculated
Total Phosphorus	1, 5	NL mg/L	NA	NA	NA	1/2W	8H-C
Total Phosphorus – Year to Date [g]	1, 5	NL mg/L	NA	NA	NA	1/M	Calculated
Total Phosphorus - Calendar Year [g]	1, 5	1.0 mg/L	NA	NA	NA	1/YR	Calculated

The basis for the limitations codes are:

1. Water Quality Standards
2. Best Professional Judgment
3. Current and Proposed TMDLs (see Section 15.B of this fact sheet)
4. 9VAC25-120 (Petroleum General Permit)
5. 9VAC25-40 (Nutrient Regulation)

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
TIRE = Totalizing, indicating and recording equipment.
S.U. = Standard units.

1/D = Once every day.
3D/W = Three days a week.
1/M = Once per month.
2/Y = Twice per year.
1/2/W = Once every two weeks.
1/YR = Once per year.

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15 minutes.

a. TSS shall be expressed as two significant figures.
b. Samples shall be collected between 10:00 a.m. and 4:00 p.m.
c. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.
d. Naphthalene shall be analyzed by a current and appropriate EPA Wastewater Method from 40 CFR Part 136 or a current and appropriate EPA SW 846 Method.
e. Semiannual monitoring periods shall be January through June and July through December. Analytical results must be received by DEQ-NRO on Jan 10 and Jul 10.
f. Total Nitrogen = Sum of TKN and NO_2+NO_3 N and shall be calculated from the results of those tests.
g. See Part I.B.3 of the permit for nutrient reporting calculations.

20. Other Permit Requirements:

a. Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels, and compliance reporting instructions. These additional chlorine requirements are necessary per the Sewage Collection and Treatment Regulations at 9VAC25-790 and the Water Quality Standards at 9VAC25-260-170. A minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more that 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be <1.0 mg/L with any TRC <0.6 mg/L considered a system failure. Monitoring at numerous STPs has concluded that a TRC residual of 1.0 mg/L is an adequate indicator of compliance with the *E. coli* criteria. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits**.**

21. Other Special Conditions:

a. 95% Capacity Reopener -- The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period.

b. Indirect Dischargers -- Required by the VPDES Permit Regulation at 9VAC25-31-200 B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c. O&M Manual Requirement -- Required by the Code of Virginia at §62.1-44.19; the Sewage Collection and Treatment Regulation at 9VAC25-790; and the VPDES Permit Regulation at 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d. Licensed Operator Requirement -- The Code of Virginia at §54.1-2300 et seq., the VPDES Permit Regulation at 9VAC25-31-200 C, and by the Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18VAC160-20-10 et seq.) require licensure of operators. This facility requires a Class III operator at the 0.09 MGD Design Flow Tier and a Class II Operator at the 0.18 Design Flow Tier.

e. Reliability Class -- The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a Reliability Class of II.

f. CTC, CTO Requirement -- The Code of Virginia at § 62.1-44.19; and the Sewage Collection and Treatment Regulations at 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

g. Water Quality Criteria Monitoring State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems or the attainment of water quality goals according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality criteria are maintained, the permittee is required to analyze the facility's effluent

for the substances noted in Attachment A of this VPDES permit and submit the results to DEQ 180 days after the issuance of a CTO for the upgraded sewage treatment plant.

h. Water Quality Criteria Reopener -- The VPDES Permit Regulation at 9VAC25-31-220 D requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.

i. Sludge Reopener -- The VPDES Permit Regulation at 9VAC25-31-220.C requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

j. Sludge Use and Disposal -- The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

k. Nutrient Offsets -- The Virginia General Assembly, in their 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, which are captured by the requirements of the law, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.

l. E3/E4 -- 9VAC25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

m. Nutrient Reopener -- 9VAC25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

n. PCB Monitoring -- This special condition requires the permittee to conduct PCB dry weather and wet weather monitoring using ultra-low level PCB analysis to support the development of the PCB TMDL for the fish consumption use impairment in Goose Creek.

o. No Discharge of Detergents, Surfactants or Solvents to the Oil/Water Separator -- This special condition is necessary to ensure that the oil/water separator's performance is not impacted by compounds designed to emulsify oil. Detergents, surfactants and some other solvents will prohibit oil recovery by physical means.

p. Oil/Water Separator Logs -- This special condition requires the permittee to report on a monthly basis, the inspection of the oil/water separator and all clean-outs performed on the treatment units. The permittee shall maintain records of inspections and clean-outs performed on the treatment units on site for a minimum of three years.

q. TMDL Reopener -- This special condition is to allow the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

21. Permit Section Part II.

Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

22. Changes to the Permit from the Previously Issued Permit:

a. Special Conditions:
1) A special condition requiring low-level PCB monitoring has been added.
2) A No Discharge of Detergents, Surfactants, Or Solvents to the Oil/Water Separator Special Condition has been added.
3) An Oil/Water Separator Logs Special Condition has been added.
4) A Water Quality Criteria Monitoring Special Condition has been added.
5) A Water Quality Criteria Reopener has been added.

b. Monitoring and Effluent Limitations:
1) The frequency of monitoring for TRC after the chlorine contact tank has been increased from daily to three times per day at four-hour intervals in accordance with current DEQ guidance.
2) The TRC limitations have been changed from a monthly and weekly average of 0.008 mg/L and 0.010 mg/L to 0.007 mg/L and 0.008 mg/L.
3) Monitoring for BTEX and naphthalene has been added.
4) Monitoring for TKN, nitrate and nitrite as nitrogen, and total phosphorus has been added to gather information for TMDL development that addresses the benthic impairment for Jeffries Branch (see **Attachment 5**) and 9VAC25-820.
5) The BOD_5 and the TSS concentration limits have been changed from 23 mg/L monthly average and 35 mg/L weekly average to 10 mg/L monthly average/15 mg/L weekly average and 5.0 mg/L monthly average/7.5 mg/L weekly average, respectively. These limits shall be effective upon the issuance of the CTO for the new wastewater treatment plant. As a consequence, the loading limits for BOD_5 and TSS at a design flow of 0.09 MGD have changed from a monthly and weekly average of 7.8 kg/day and 12 kg/day to 3.4 kg/day monthly average/5.1 kg/day weekly average and 1.7 kg/day monthly average/2.6 kg/day weekly average, respectively.
6) Limits for TN (8.0 mg/L) and TP (1.0 mg/L) shall be effective when the wastewater treatment plant is upgraded to 0.18 MGD.

c. Other:
1) The requirement for VELAP Certification of laboratories has been added to Part II of the permit.

23. Variances/Alternate Limits or Conditions:
None

24. Public Notice Information:

First Public Notice Date: Second Public Notice Date:

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3837, anna.westernik@deq.virginia.gov. See **Attachment 11** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

25. Additional Comments:

Previous Board Action(s): None

Staff Comments: None

Public Comment: No comments were received during the public notice period

ATTACHMENTS

Attachment 1	Flow Frequency Determination
Attachment 2	Facility Schematic/Diagram
Attachment 3	Topographic Map 216C (Ashby Gap)
Attachment 4	Site Inspection Report Dated 01/14/13
Attachment 5	Planning Statement Dated 04/11/13
Attachment 6	Water Quality Criteria and Wasteload Allocations
Attachment 7	90^{th} Percentile pH and Temperature Data
Attachment 8	Effluent Data Summary
Attachment 9	Effluent Limits Calculations
Attachment 10	Stream Model Dated 04/15/75
Attachment 11	Public Notice

Attachment 1

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination
F.E.M.A. Special Facility - VA#0024759

TO: James Engbert, NRO

FROM: Paul E. Herman, P.E., WQAP

DATE: March 24, 1998

COPIES: Ron Gregory, Charles Martin, File

The F.E.M.A. Special Facility discharges to an unnamed tributary of Jeffries Branch near Mt. Weather, VA. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

At the discharge point, the receiving stream is shown to be intermittent on the USGS Ashby Gap Quadrangle topographic map. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and harmonic mean. For modeling purposes, flow frequencies have been determined for the first perennial reach downstream from the discharge point. The perennial point is located at the confluence of the intermittent stream and Jeffries Branch.

The VDEQ operated a continuous record gage on the Goose Creek near Middleburg, VA (#01634700) from 1966 to 1996. The gage was located at the Route 611 bridge in Loudoun County, VA. The flow frequencies for the gage and the discharge point are presented below. The values at the discharge point were determined by drainage area proportions and do not address any withdrawals, discharges, or springs lying upstream.

Goose Creek near Middleburg, VA (#01634700):

Drainage Area = 123 mi^2

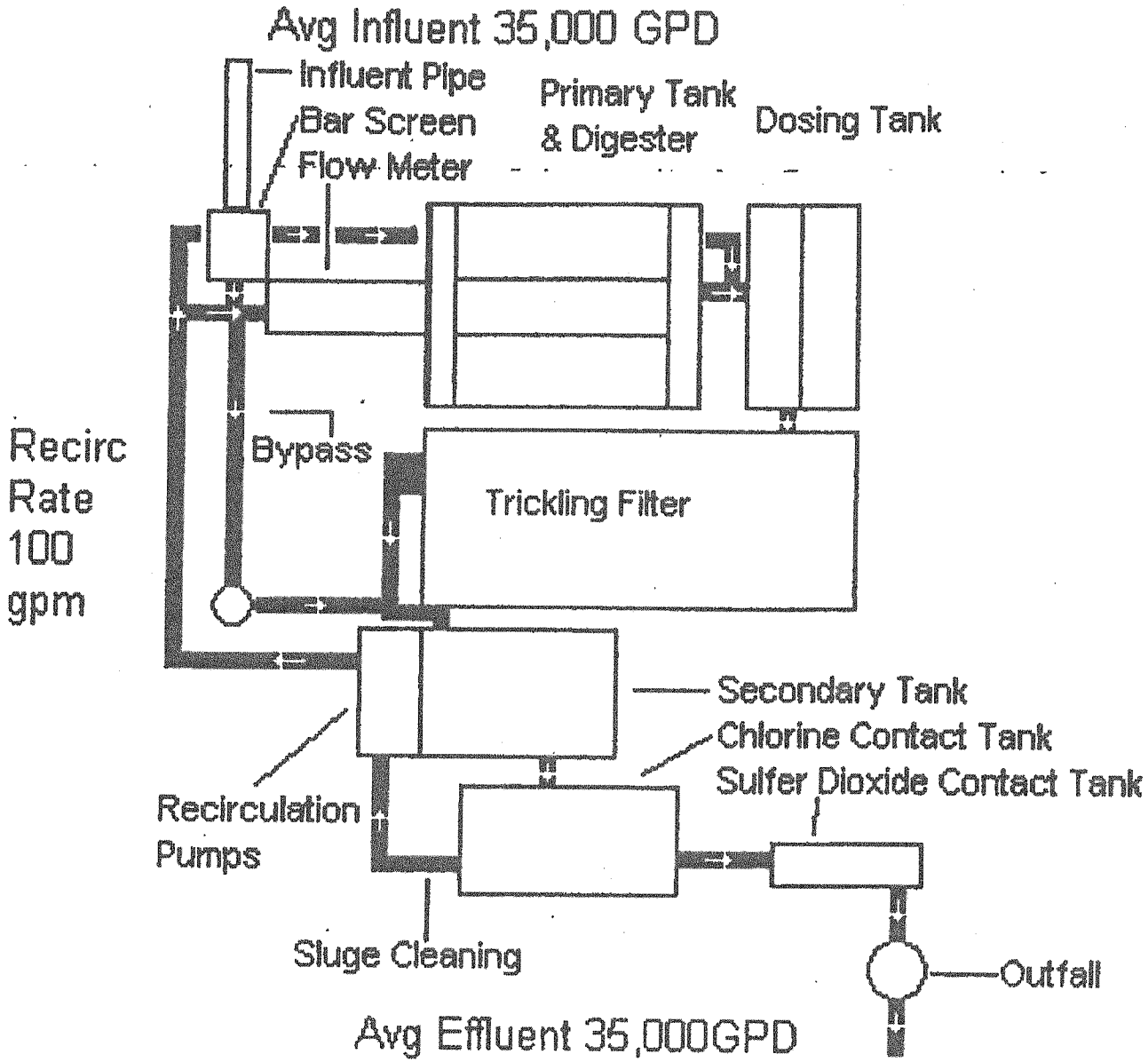
1Q10 = 0.0 cfs		High Flow 1Q10 = 8.6 cfs	
7Q10 = 0.0037 cfs		High Flow 7Q10 = 11 cfs	
30Q5 = 1.55 cfs		HM = 0.0 cfs	

Jeffries Branch above intermittent stream:

Drainage Area = 1.63 mi^2

1Q10 = 0.0 cfs = 0 MGD		High Flow 1Q10 = 0.11 cfs	= 0.071093 MGD
7Q10 = 0.0 cfs = 0 MGD		High Flow 7Q10 = 0.15 cfs	= 0.0969451 MGD
30Q5 = 0.02 cfs = 0.012926 MGD		HM = 0.0 cfs	= 0 MGD

The high flow months are December through May. If you have any questions concerning this analysis, please let me know.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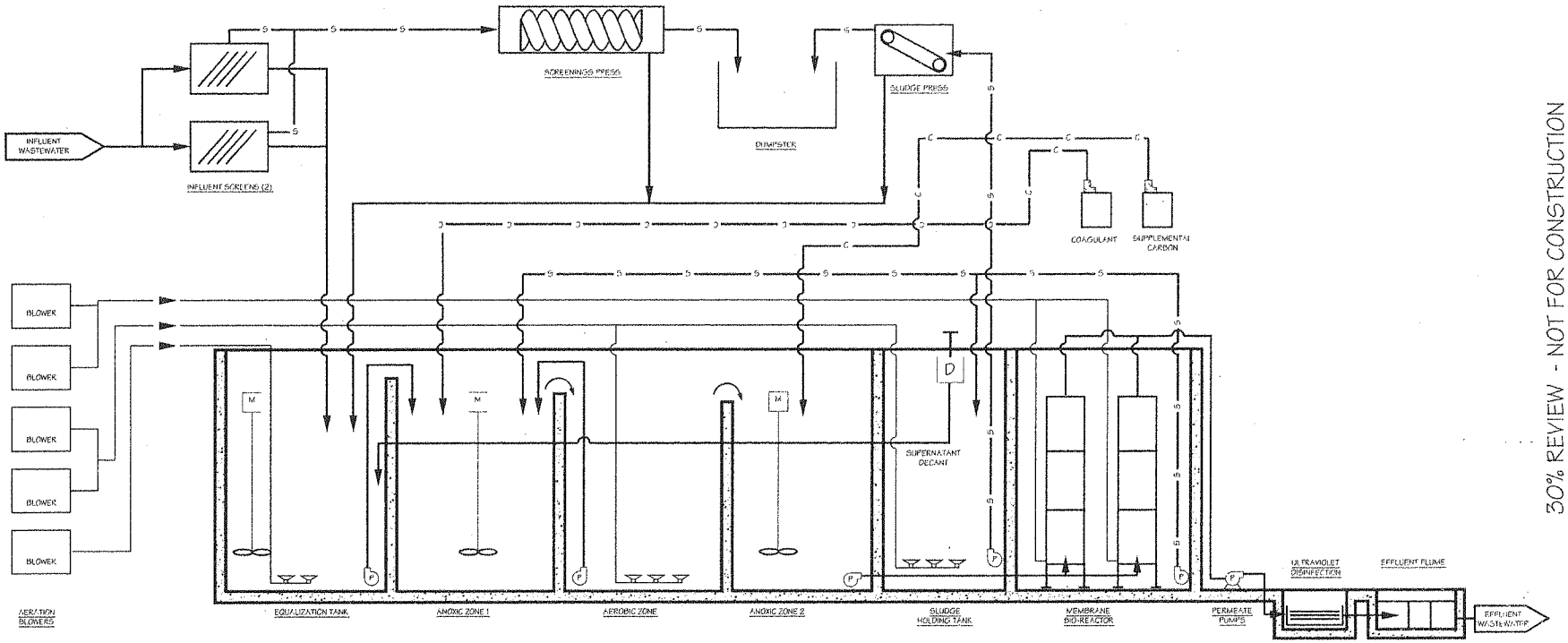
Influent Pipe
Bar Screen
Flow Meter
Primary Tank
& Digester
Dosing Tank
Recirc
Rate
100
gpm
Bypass
Trickling Filter
Secondary Tank
Chlorine Contact Tank
Sulfer Dioxide Contact Tank
Recirculation
Pumps
Sluge Cleaning
Outfall
Avg Effluent 35,000GPD

MWEOC #: EPS-XXXX



30% REVIEW - NOT FOR CONSTRUCTION

OFFICIAL USE ONLY
RETURN REQUIRED
DO NOT FORWARD

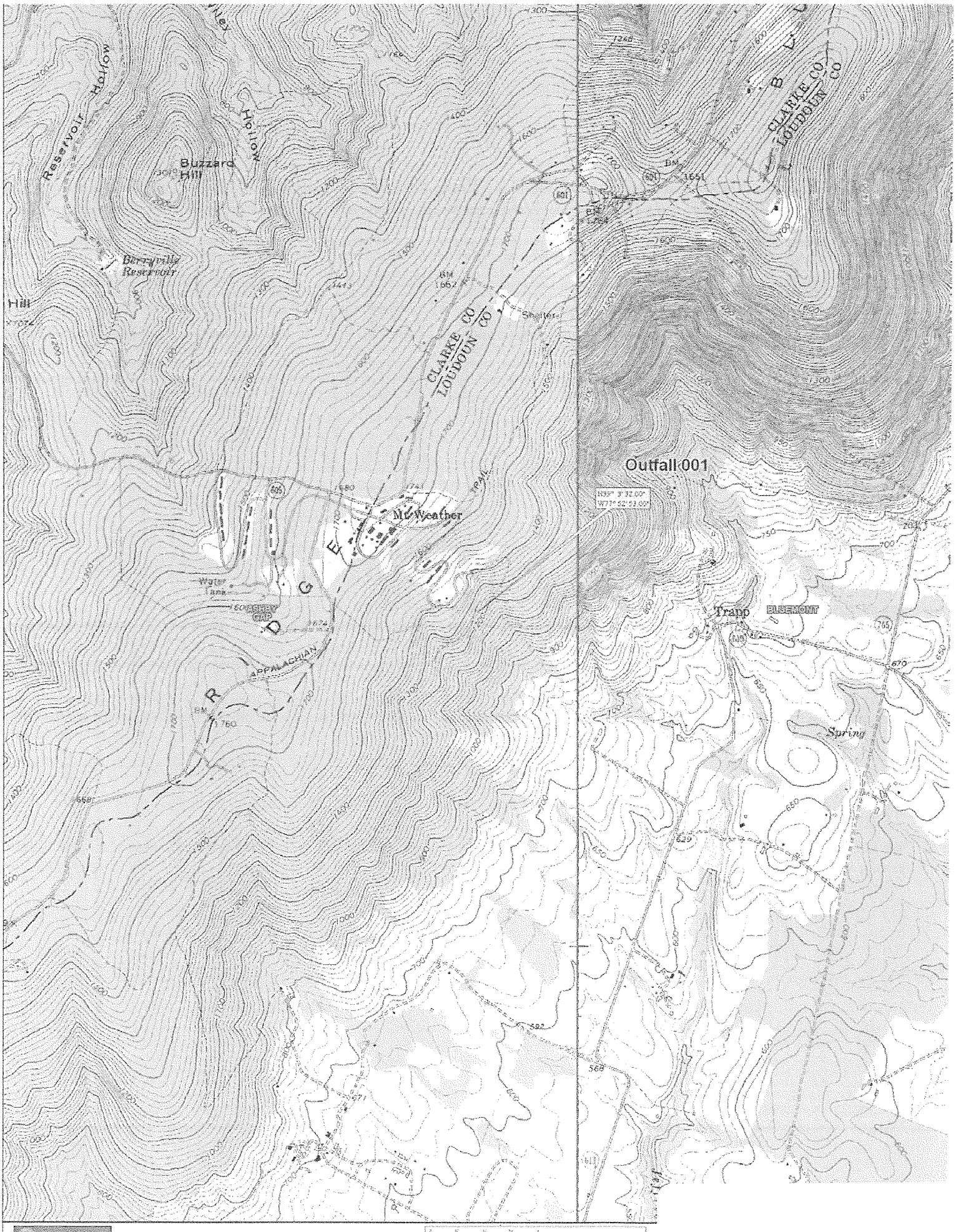
PROCESS FLOW DIAGRAM

Mount Weather EOC
WASTE WATER TREATMENT PLANT UPGRADE
PROJECT

Mount Weather EOC
Mt. Weather
Virginia 20135
540-542-2158
OWNER

Waste Water Management, Inc.
2820 Dorr Avenue, Suite 200
Fairfax, VA 22031
(703) 846-0098
ENGINEER

Scale:	N.T.S.
Project:	WWM-1226
Original:	11-05-2015
Revised:	
Sheet:	WW-M-01



Attachment 3

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

Northern Regional Office

TO: File

FROM: Anna Westernik, Water Permit Writer

DATE: January 14, 2013

SUBJECT: January 9, 2013 Site Inspection of U.S. FEMA Bluemont STP in Mt. Weather, Virginia (VA0024759)

On January 9, 2013, DEQ visited the sewage treatment plant (STP) at the FEMA facility in Mt. Weather, Virginia for the purpose of reissuing the municipal permit. Present during the inspection were Kathy Ellis, Environmental Engineer, Harold Rohde, Civil Engineer, Tim Moulton, Water Plant Operator, and myself.

Sewage created at the FEMA facility is treated by a trickling filter system. Influent flow travels through a bar screen, is metered, entered a primary tank, a dosing tank, a trickling filter, a secondary tank, a chlorine contact tank, a sulfur dioxide tank, cascade aeration, and then is discharged to a unnamed tributary of Jefferies Branch.

Primary treatment consists of a bar screen that removes floating debris. A microbe solution is fed at the bar screen to improve plant efficiency. Influent flow is measured after screening and enters an Imhoff tank for primary settling. Anaerobic digestion of the solids at the bottom of this tank occurs. The solids are removed four to five times per year and pumped to sludge drying beds. Dried sludge is transported to the Winchester STP for disposal.

After primary treatment, the sewage enters a dosing tank from where it is distributed to a trickling filter for secondary treatment. Treated flow from the trickling filter drops to an underdrain of the filter and is sent via gravity feed to a secondary tank for clarification. Flow from the secondary tank either enters the chlorine contact tank for disinfection or is recirculated to the head of the plant to enhance treatment. Any sludge generated in this area is sent to the Imhoff tank.

Gas chlorine is applied to effluent from the final settling tank by means of a one-inch rubber hose (gravity feed connection) into the effluent pipeline as it passes through the chlorine application manhole. The chlorinated effluent is then sent to the chlorine contact chamber where it is detained a sufficient period of time to permit the chlorine to oxidize organic matter.

Effluent exiting the chlorine contact tank is piped to sulfur dioxide dechlorination facilities, where gaseous sulfur dioxide is applied by means of a one-inch PVC pipe to a manhole located S.E. of the chlorine contact chamber. The eight-inch plant outfall connects to the sulfur dioxide contact chamber and carries the final plant effluent to a number of steps for aeration then to a nearby stream.

All compliance sampling, except ammonia, is conducted directly after aeration. Ammonia samples are collected from a pool near the perimeter road after overland flow.

Aquatic life was not observed in the ammonia sampling pool on the date of the site visit. However, the visit was conducted in winter, when there were low temperatures and considerable snow cover.

FEMA intends to replace this plant with a state of the art nutrient removal facility. This decision is in response to the proposed benthic TMDL proposed for Jefferies Branch and their desire to have a modern treatment facility.

To:	Anna Westernik
From:	Jennifer Carlson
Date:	March 12, 2014
Subject:	Planning Statement for U.S. FEMA Bluemont STP
Permit Number:	VA0024759

Information for Outfall 001:

Discharge Type:	Minor Municipal
Discharge Flow:	0.18 MGD
Receiving Stream:	Jefferies Branch, UT
Latitude / Longitude:	39° 03' 32" N; 77° 52' 53"
Rivermile:	1.12
Streamcode:	1aXCD
Waterbody:	VAN-A05R
Water Quality Standards:	Class III, Section 9
Drainage Area:	0.1 mi^2

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

   This facility discharges to an unnamed tributary to Jeffries Branch, which is not monitored and assessed by DEQ. The nearest downstream DEQ monitoring station is 1aJEE002.22, located on Jeffries Branch at the Route 743 bridge crossing, approximately 3 miles downstream of Outfall 001. The following is the water quality summary for this segment of Jeffries Branch, as taken from the 2012 Integrated Report:

   DEQ monitoring station located in this segment of Jeffries Branch:
   - *Biological monitoring station 1aJEE002.22*

   Biological monitoring finds benthic macroinvertebrate impairments, resulting in an impaired classification for the aquatic life use. Additionally, citizen monitoring finds a medium probability of adverse conditions for biota.

   The E. coli data collected by the citizen monitoring group indicate that a water quality issue may exist for the recreation use; however, the methodology and/or data quality has not been approved for such a determination. The recreation use is noted with an observed effect.

   The fish consumption and wildlife uses were not assessed.

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

   No.

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3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

Yes.

Table B. Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the 2012 Integrated Report							
Jeffries Branch	Aquatic Life	Benthic Macroinvertebrates	1.1 miles	No	---	---	2024
Panther Skin Creek	Recreation	*E. coli*	5.3 miles	Goose Creek Watershed Bacteria 05/01/03 (Mod. 10/27/06)	4.97E+11 cfu/year fecal coliform; 3.13E+11 cfu/year *E. coli*	200 cfu/100ml FC; 126 cfu/100ml *E. coli* --- 0.18 MGD	N/A
Goose Creek	Fish Consumption	PCBs	34.7 miles	No	---	---	2018
	Aquatic Life	Benthic Macroinvertebrates	35.8 miles	Goose Creek Watershed Benthic 04/26/04	3.2 tons/yr TSS*	23 mg/L TSS --- 0.09 MGD*	N/A

**It is noted that the WLA for TSS (3.2 tons/year) for the U.S. FEMA Bluemont STP facility will remain the same despite the increase in the design flow from 0.09 MGD to 0.18 MGD. At the higher flow tier, the TSS concentration limit is proposed to be 5 mg/L. Calculating a new WLA based upon the higher design flow and the lower TSS concentration limit would result in a smaller WLA that would not be achieved until the plant upgrade was complete. For the time being, the WLA of 3.2 tons/year TSS assigned to this facility in the Goose Creek Benthic TMDL will remain.*

This facility was assigned a WLA for 16 tons/year of TSS in the Benthic TMDL for the Goose Creek watershed, and a WLA of 1.24E+12 cfu/year of fecal coliform in the modification to the Goose Creek Bacteria TMDL. The total WLAs were calculated based upon the assumption of the facility operating at 5 times the design flow, and the permitted maximum average concentration for TSS (mg/L) and, at the time, the permitted maximum average concentration of 200 cfu/100ml of fecal coliform bacteria, respectively. The factor of 5 for the design flow was used in both TMDLs as a conservative measure to build in future growth in the watershed. Although the future growth for the watershed was determined by the existing design flow of each facility in the watershed, the future growth is available for both new and expanding permits in the watershed. The actual WLA in the Benthic TMDL for this facility without including the future growth is 3.2 tons/year, based on a design flow of 0.09 MGD. The WLA assigned to this facility in the modified Bacteria TMDL is 2.48E+11 cfu/year of fecal coliform, based on a design flow of 0.09 MGD.

Since the approved modification of the Bacteria TMDL for Goose Creek, the U.S. FEMA Bluemont STP facility has updated the maximum flow tier to 0.18 MGD. The Bacteria TMDL was modified to include a reserve allocation designated for future growth, available for allocation to new and expanding permits

in the watershed on a first-come, first-serve basis, and is tracked as permits are added or terminated within the watershed. The Goose Creek Bacteria TMDL was modified to include a future growth allocation of 3.09E+13 cfu/yr fecal coliform. Previous to the expansion of the FEMA Bluemont STP facility, there were several new permits that used a small portion of the future growth allocation, bringing the remaining allocation to 3.09E+13 cfu/yr fecal coliform. In assigning a new WLA to FEMA Bluemont STP to account for the expansion, 2.49E+11 cfu/yr fecal coliform of the future growth allocation is consumed, leaving 3.06E+13 cfu/yr fecal coliform available for future new permits and facility expansions. There is sufficient future growth in the TMDL to allocate a new WLA of 4.97E+11 cfu/yr fecal coliform for this permit. The assignment of future growth allocation for the new fecal coliform WLA for the FEMA Bluemont STP facility is consistent with the assumptions and requirements of the Goose Creek Bacteria TMDL.

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

   DEQ planning staff requests the facility perform quarterly nutrient monitoring, specifically total phosphorus, nitrate, nitrite, ammonia, and TKN. Nutrient monitoring is requested of facilities that are located within a distance of 5 miles upstream of a benthic impairment.

   Goose Creek is listed with a PCB impairment, approximately 35 miles downstream of this facility. In support for the PCB TMDL that is scheduled for development by 2018 for Goose Creek, this facility is a candidate for low-level PCB monitoring, based upon its designation as a minor municipal facility. DEQ staff recommends that this facility perform low-level PCB monitoring during the upcoming permit cycle. It is recommended that this facility collect 2 samples using EPA Method 1668, which is capable of detecting low-level concentrations for all 209 PCB congeners. PCB data generated using Method 1668 revisions A, B, C are acceptable, however data generated using versions A or C is preferred.

   There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

   There are no public water supply intakes located within 5 miles of this discharge.

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FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: FEMA -- Bluemont STP Permit No.: VA0024759

Receiving Stream: Jefferies Branch, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO3) =	204 mg/L
90% Temperature (Annual) =	deg C	7Q10 (Annual) =	0 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	21 deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	0 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	deg C
90% Maximum pH =	SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	7.6 SU
10% Maximum pH =	SU	30Q10 (Wet season)	0 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	7.1 SU
Tier Designation (1 or 2) =	1	30Q5 =	0 MGD			Discharge Flow =	0.09 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	y						

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile [C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	1.70E+01	2.62E+00	na	--	1.70E+01	2.62E+00	na	--	--	--	--	--	--	--	--	--	1.70E+01	2.62E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	1.70E+01	3.98E+00	na	--	1.70E+01	3.98E+00	na	--	--	--	--	--	--	--	--	--	1.70E+01	3.98E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	o	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine [C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	8.8E+00	2.0E+00	na	--	8.8E+00	2.0E+00	na	--	--	--	--	--	--	--	--	--	8.8E+00	2.0E+00	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	1.0E+03	1.3E+02	na	--	1.0E+03	1.3E+02	na	--	--	--	--	--	--	--	--	--	1.0E+03	1.3E+02	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene [C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	2.6E+01	1.6E+01	na	--	2.6E+01	1.6E+01	na	--	--	--	--	--	--	--	--	--	2.6E+01	1.6E+01	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD [C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE [C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT [C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane [C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane [C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene [C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin [C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene [C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene [C]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene [C]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane [C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone [C]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	2.9E+02	3.3E+01	na	--	2.9E+02	3.3E+01	na	--	--	--	--	--	--	--	--	--	2.9E+02	3.3E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [C]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	3.3E+02	3.7E+01	na	4.6E+03	3.3E+02	3.7E+01	na	4.6E+03	--	--	--	--	--	--	--	--	3.3E+02	3.7E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine [C]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine [C]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine [C]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total [C]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [C]	0	9.6E+00	7.4E+00	na	3.0E+01	9.6E+00	7.4E+00	na	3.0E+01	--	--	--	--	--	--	--	--	9.6E+00	7.4E+00	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**na**	**4.2E+03**
Silver	0	1.2E+01	--	na	--	1.2E+01	--	na	--	--	--	--	--	--	--	--	--	**1.2E+01**	**--**	**na**	**--**
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.0E+01**
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.3E+01**
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.7E-01**
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.0E+03**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**na**	**2.8E-03**
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	**4.6E-01**	**7.2E-02**	**na**	**--**
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**7.0E+01**
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.6E+02**
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.0E+02**
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
Zinc	0	2.1E+02	2.2E+02	na	2.6E+04	2.1E+02	2.2E+02	na	2.6E+04	--	--	--	--	--	--	--	--	**2.1E+02**	**2.2E+02**	**na**	**2.6E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	1.2E+00
Chromium III	8.0E+01
Chromium VI	6.4E+00
Copper	9.9E+00
Iron	na
Lead	2.0E+01
Manganese	na
Mercury	4.6E-01
Nickel	2.2E+01
Selenium	3.0E+00
Silver	4.7E+00
Zinc	8.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

FEMA Bluemont STP (VA0024759)
Daily pH and Temperature Values in Standard Units (S.U.) and Degrees Celcius
Sep 2012 -- Aug 2013

September-12	7.4	22.7
	7.5	22.9
	7.2	22.8
	7.5	22.4
	7.4	22.4
	7.5	22.9
	7.4	22.6
	7.4	22.6
	7.4	21.4
	7.7	20.5
	7.2	20.5
	7.4	20.4
	7.5	20.7
	7.4	21.4
	7.3	20.4
	7.6	19.7
	7.5	19.4
	7.3	21.2
	6.5	19.8
	7.2	19.3
	7.4	19.9
	7.1	20.5
	7.2	20.3
	7.5	18.3
	7.5	18.2
	7.5	18.9
	7.6	19.9
	7.5	19.7
	7.5	19.3
	7.4	18.4
October-12	7.5	17.6
	7.3	18.4
	7.4	19.4
	7.4	20.4
	7.5	19.4
	7.4	19.4
	7.5	18.0
	7.6	16.2
	7.1	16.0
	7.2	17.6
	7.3	15.4
	7.5	15.8
	7.4	16.7
	7.4	17.0
	7.2	18.0
	7.5	17.4
	7.7	16.5
	7.6	17.0
	7.6	17.0
	7.6	17.4
	7.7	16.0
	7.8	15.8
	7.5	17.4
	7.4	19.4

Attachment 7

FEMA Bluemont STP (VA0024759)
Daily pH and Temperature Values in Standard Units (S.U.) and Degrees Celcius
Sep 2012 -- Aug 2013

	7.6	17.4
	7.5	17.7
	7.6	18.4
	7.6	17.4
	7.6	16.4
	7.3	14.0
	7.0	15.0
November-12	7.1	15.3
	6.9	14.5
	7.0	14.5
	7.0	14.5
	7.2	13.5
	7.3	12.8
	7.4	13.1
	7.4	12.3
	7.5	13.4
	7.3	13.4
	7.4	13.4
	7.4	14.4
	7.5	13.4
	7.4	12.4
	7.6	12.5
	7.6	12.4
	7.4	12.4
	7.4	12.0
	7.4	12.4
	7.3	13.5
	7.3	14.0
	7.3	12.8
	7.3	13.8
	7.5	14.6
	7.3	12.3
	7.5	11.9
	7.6	11.4
	7.6	11.4
	7.6	10.4
	7.6	12.4
December-12	7.7	11.4
	7.5	12.4
	7.5	12.4
	7.4	13.4
	7.5	13.4
	7.6	12.4
	7.6	12.4
	7.6	12.4
	7.6	13.1
	7.5	12.4
	7.5	13.5
	7.5	12.4
	7.4	11.5
	7.3	12.3
	7.3	12.5
	7.3	12.7
	7.2	13.3

FEMA Bluemont STP (VA0024759)
Daily pH and Temperature Values in Standard Units (S.U.) and Degrees Celcius
Sep 2012 -- Aug 2013

	7.5	13.4
	7.5	12.4
	7.5	12.4
	7.6	11.4
	7.6	10.8
	7.5	9.4
	7.5	10.4
	7.5	9.9
	7.5	10.4
	7.7	9.4
	7.6	9.4
	7.5	10.4
	7.5	9.8
	7.6	9.1
January-13	7.4	10.6
	7.5	10.3
	7.3	10.6
	7.4	10.5
	7.4	10.8
	7.3	10.7
	7.5	11.0
	7.4	11.4
	7.6	10.4
	7.6	10.4
	7.6	10.4
	7.6	10.4
	7.5	12.4
	7.5	12.4
	7.6	11.5
	7.5	10.3
	7.4	11.5
	7.5	10.9
	7.6	10.4
	7.4	10.8
	7.4	10.1
	7.4	9.9
	7.4	8.8
	7.4	9.5
	7.4	9.4
	7.2	9.0
	7.1	9.2
	7.1	9.6
	7.6	10.4
	7.4	11.4
	7.6	10.4
February-13	7.1	9.4
	7.0	10.4
	7.3	9.4
	7.3	8.4
	7.2	10.4
	7.3	10.4
	7.3	10.4
	7.3	10.4
	7.2	10.4

FEMA Bluemont STP (VA0024759)
Daily pH and Temperature Values in Standard Units (S.U.) and Degrees Celcius
Sep 2012 -- Aug 2013

	7.2	9.4
	7.2	9.5
	7.3	11.2
	7.3	11.6
	7.3	11.5
	7.3	10.7
	7.3	10.6
	6.8	8.5
	7.3	7.9
	7.1	9.4
	7.5	8.4
	7.4	7.4
	7.5	8.4
	7.6	8.4
	7.4	9.4
	7.6	8.0
	7.6	9.4
	7.4	10.4
	7.5	10.4
March-13	7.4	10.4
	7.4	10.4
	7.4	9.5
	7.4	9.4
	7.4	10.6
	7.3	12.7
	6.9	10.7
	7.2	10.1
	7.3	10.3
	7.2	11.3
	7.2	11.6
	7.4	13.4
	7.4	10.4
	7.3	9.4
	7.2	9.4
	7.2	12.1
	7.1	11.4
	7.0	11.4
	6.9	11.0
	7.2	10.4
	7.2	11.4
	7.2	10.4
	7.3	11.4
	7.3	10.6
	7.3	10.4
	7.1	10.9
	7.0	11.6
	7.0	11.4
	7.1	12.2
	7.1	12.4
	7.3	11.4
April-13	6.8	11.6
	7.3	11.4
	7.3	10.4
	7.2	10.4

FEMA Bluemont STP (VA0024759)
Daily pH and Temperature Values in Standard Units (S.U.) and Degrees Celcius
Sep 2012 -- Aug 2013

	7.4	11.4
	7.3	11.4
	7.3	11.4
	7.5	11.4
	7.2	13.4
	7.2	15.4
	7.2	15.4
	7.2	13.4
	7.3	12.4
	7.4	13.0
	7.5	13.6
	7.4	14.6
	7.4	15.7
	7.4	16.2
	7.5	16.7
	7.2	14.5
	7.3	13.4
	7.4	13.1
	7.3	13.4
	7.5	13.4
	7.4	13.4
	7.5	14.4
	7.5	14.4
	7.5	13.4
	7.3	14.4
	7.5	16.4
May-13	7.3	14.4
	7.4	14.4
	7.3	14.4
	7.2	14.4
	7.1	14.0
	7.2	14.4
	7.2	15.4
	7.1	15.3
	7.1	15.3
	7.3	15.8
	7.2	15.4
	7.1	14.4
	7.1	15.5
	7.2	13.4
	7.1	15.4
	7.2	15.4
	7.1	15.4
	7.1	16.4
	7.1	16.5
	7.1	16.4
	7.0	16.4
	7.2	17.4
	7.1	18.4
	7.3	19.4
	7.2	14.4
	7.3	14.2
	7.2	14.9
	7.3	15.7

FEMA Bluemont STP (VA0024759)
Daily pH and Temperature Values in Standard Units (S.U.) and Degrees Celcius
Sep 2012 -- Aug 2013

	7.2	18.3
	7.2	17.7
	7.3	19.2
June-13	7.3	19.5
	7.2	18.8
	7.3	18.6
	7.2	17.1
	7.3	17.1
	7.3	18.1
	7.3	17.1
	7.3	17.1
	7.2	18.1
	7.3	18.1
	7.2	17.1
	7.3	18.1
	7.3	18.1
	7.3	17.1
	7.2	17.1
	7.1	17.4
	7.2	18.1
	7.2	19.4
	7.2	18.5
	7.2	18.9
	7.1	18.0
	7.7	18.1
	7.1	17.3
	7.2	19.3
	7.2	19.1
	7.2	20.1
	7.2	20.1
	7.3	19.1
	7.3	19.8
	7.4	19.1
July-13	7.4	20.0
	7.3	20.0
	7.4	20.0
	7.5	20.0
	7.6	20.0
	7.4	20.0
	7.2	20.3
	7.4	20.3
	7.4	20.3
	7.5	20.8
	7.2	21.0
	7.4	20.4
	7.1	21.0
	7.1	20.8
	7.3	22.2
	7.3	22.0
	7.4	22.0
	7.4	22.0
	7.4	22.0
	7.6	22.0
	7.3	22.0

FEMA Bluemont STP (VA0024759)
Daily pH and Temperature Values in Standard Units (S.U.) and Degrees Celcius
Sep 2012 -- Aug 2013

	7.4	22.0
	7.3	21.0
	7.2	21.3
	7.3	20.0
	7.2	20.0
	7.3	20.0
	7.2	20.7
	7.3	20.0
	7.2	20.5
	7.3	20.9
August-13	7.3	20.8
	7.3	21.3
	7.2	21.2
	7.2	19.8
	7.3	19.8
	7.1	20.3
	7.3	21.0
	7.4	21.0
	7.4	21.0
	7.4	21.0
	7.4	21.0
	7.5	21.0
	7.4	22.0
	7.4	20.1
	7.4	17.0
	7.5	19.0
	7.3	20.0
	7.5	19.6
	7.5	19.2
	7.2	20.1
	7.1	21.3
	7.3	21.2
	7.4	21.3
	7.2	20.3
	7.6	21.0
	7.2	20.8
	7.5	21.0
	7.6	21.2
	7.4	21.0
	7.5	21.0
	7.6	22.0
90th Percentile	**7.6**	**21.0**
10th Percentile	**7.1**	

FEMA -- Bluemont STP
TSS Monitoring Data (Sep 2012 -- Aug 2013)
Permit #:VA0024759

Date DMR Due	Monthly Average (kg/d)	Maximum (kg/d)	Average Concentration (mg/L)	Maximum Concentration (mg/L)
10-Aug-13	0.8	1.27	4.3	5
10-Jul-13	3.08	7.93	13.1	30.9
10-Jun-13	1.96	2.21	9.9	13.6
10-May-13	1.05	1.31	8	9.2
10-Apr-13	5.47	11.28	11.2	23.5
10-Mar-13	1.34	4.57	4.1	11.5
10-Feb-13	0.79	1.32	5.6	10.2
10-Jan-13	0.39	0.65	3	5
10-Dec-12	0.53	0.93	3.5	5.7
10-Nov-12	0.72	0.46	4	3.8
10-Oct-12	1.73	5.43	6.3	12.7

FEMA -- Bluemont STP
BOD Monitoring Data (Sep 2012 -- Aug 2013)
Permit #:VA0024759

Date DMR Due	Monthly Average (kg/d)	Maximum (kg/d)	Average Concentration (mg/L)	Maximum Concentration (mg/L)
10-Sep-13	<QL	<QL	<QL	<QL
10-Aug-13	0.25	1.24	1.2	6.1
10-Jul-13	<QL	<QL	<QL	<QL
10-Jun-13	<QL	<QL	<QL	<QL
10-May-13	<QL	<QL	<QL	<QL
10-Apr-13	<QL	<QL	<QL	<QL
10-Mar-13	<QL	<QL	<QL	<QL
10-Feb-13	0.7	<QL	2	<QL
10-Jan-13	<QL	<QL	<QL	<QL
10-Dec-12	<QL	<QL	<QL	<QL
10-Nov-12	<QL	<QL	<QL	<QL
10-Oct-12	<QL	<QL	<QL	<QL

FEMA -- Bluemont STP
Ammonia Monitoring Data (Sep 2012 -- Aug 2013)
Permit #:VA0024759

Date DMR Due	Average Concentration (mg/L)	Maximum Concentration (mg/L)
10-Sep-13	<QL	<QL
10-Aug-13	<QL	<QL
10-Jul-13	<QL	<QL
10-Jun-13	<QL	<QL
10-May-13	<QL	<QL
10-Apr-13	<QL	<QL
10-Mar-13	0.2	0.3
10-Feb-13	0.3	<QL
10-Jan-13	<QL	<QL
10-Dec-12	<QL	<QL
10-Nov-12	<QL	<QL
10-Oct-12	<QL	<QL

FEMA -- Bluemont STP
TPH Monitoring Data (Sep 2012 -- Aug 2013)
Permit #:VA0024759

Date DMR Due	Maximum Concentration (mg/L)
10-Sep-13	<.5
10-Aug-13	<.5
10-Jul-13	<.58
10-Jun-13	<.5
10-May-13	<.52
10-Apr-13	<0.58
10-Mar-13	<.5
10-Feb-13	<.5
10-Jan-13	<0.5
10-Dec-12	<.51
10-Nov-12	<.5
10-Oct-12	<.58

FEMA -- Bluemont STP
TRC Monitoring Data (Sep 2012 -- Aug 2013)
Permit #:VA0024759

Date DMR Due	Monthly Average Concentration (mg/L)
10-Sep-13	<QL
10-Aug-13	<QL
10-Jul-13	<QL
10-Jun-13	<QL
10-May-13	<QL
10-Apr-13	<QL
10-Mar-13	<QL
10-Feb-13	<QL
10-Jan-13	<QL
10-Dec-12	<QL
10-Nov-12	<QL
10-Oct-12	<QL

10/2/2013 10:49:21 AM

Facility = FEMA Bluemont STP
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 17
WLAc = 2.62
Q.L. = .2
# samples/mo. = 4
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 5.28629564475073
Average Weekly limit = 5.28629564475074
Average Monthly LImit = 3.61437630566885

The data are:

9

9/26/2013 2:20:23 PM

Facility = FEMA Bluemont STP
Chemical = TRC
Chronic averaging period = 4
WLAa = 19
WLAc = 11
Q.L. = 100
# samples/mo. = 90
# samples/wk. = 23

Summary of Statistics:

observations = 1
Expected Value = 200
Variance = 14400
C.V. = 0.6
97th percentile daily values = 486.683
97th percentile 4 day average = 332.758
97th percentile 30 day average= 241.210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 16.0883226245855
Average Weekly limit = 8.2932988083132
Average Monthly LImit = 7.39793639872119

The data are:

200

Attachment 10

MEMORANDUM

State Water Control Board

2111 North Hamilton Street

P. O. Box 11143

SUBJECT: NPDES - Loudoun County - U.S. Army - Western Virginia Area Office

TO: A. E. Pollock - BAT

FROM: Gary N. Moore

DATE: April 15, 1975

COPIES: John Hopkins - NRO

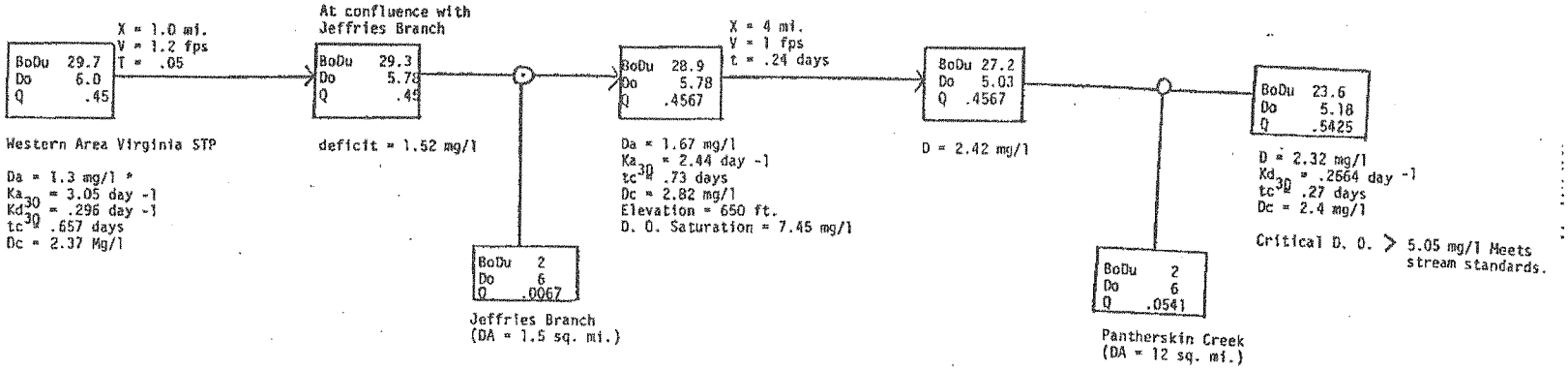
I have run the SAA for this facility again, per your request, using stream standards rather than non-degradation.

23 mg/l BOD_5 and 6.0 mg/l D.O. meet standards in Jeffries Branch and Pantherskin Creek.

/pl

U.S. ARMY - WESTERN AREA VIRGINIA OFFICE

NPDES SAA
4-10-75



Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Fairfax County, Virginia.

PUBLIC COMMENT PERIOD: TBD to TBD

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Federal Emergency Management Agency
P.O. Box 129, Mount Weather, VA 22611
VA0024759

NAME AND ADDRESS OF FACILITY: Mount Weather Emergency Operations Center
19844 Blue Ridge Mountain Road, Mount Weather, VA 20135

PROJECT DESCRIPTION: The Federal Emergency Management Agency has applied for reissuance of a permit for the Federal Emergency Management Agency Sewage Treatment Plant The applicant proposes to release treated sewage wastewaters from this federal operation at a rate of 0.180 million gallons per day into an unnamed tributary of Jeffries Branch in Loudoun County in the Potomac River Watershed. A watershed is the land area drained by a river and its incoming streams. Sludge from the treatment process will be disposed of in the Frederick County, Virginia Landfill. The permit will limit the following pollutants to amounts that protect water quality: pH, biochemical oxygen demand-5 day, total dissolved solids, dissolved oxygen, ammonia as nitrogen, *E. coli* bacteria, Total Nitrogen, Total Phosphorus, total petroleum hydrocarbons, and naphthalene. Monitoring will be required for total Kjeldahl nitrogen, nitrate and nitrite as nitrogen, benzene, toluene, ethylbenzene, and xylene.

This facility is subject to the requirements of 9 VAC 25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.
Name: Anna T. Westernik
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3837 E-mail: anna.westernik@deq.virginia.gov Fax: (703) 583-3821